Implementation of Project Management Learning Using Trello in an Independent Study Program at VINIX Indonesia

Alyana Isti Hasnani*, Sinta Dewi

Industrial Engineering Department, Universitas Pembangunan Nasional "Veteran" Jawa Timur, Surabaya
***Corresponding author**: 22032010070@student.upnjatim.ac.id

Abstract

The Independent Study program is designed to enhance students' practical competencies through project-based learning aligned with industry needs. This study aims to analyze the implementation of Project Management learning in the Independent Study program conducted by VINIX Indonesia. The learning process emphasizes practical project planning, task organization, scheduling, and monitoring using digital project management tools, particularly Trello. This study employed a descriptive qualitative approach by observing learning activities, project documentation, and personal reflections during the program. The results show that the use of Trello supports effective task management, improves project organization, and enhances students' understanding of project management concepts. The project-based learning approach also strengthens students' problem-solving skills, teamwork, and readiness for professional work environments. Therefore, the Independent Study program at VINIX Indonesia can be considered an effective learning model for developing project management competencies in higher education.
Keywords: *digital learning, independent study, project-based learning, project management, trello*

Abstrak

Program Studi Independen dirancang untuk meningkatkan kompetensi mahasiswa melalui pembelajaran berbasis proyek yang selaras dengan kebutuhan industri. Penelitian ini bertujuan untuk menganalisis implementasi pembelajaran *Project Management* pada program Studi Independen yang diselenggarakan oleh VINIX Indonesia. Proses pembelajaran menekankan perencanaan proyek, pengorganisasian tugas, penjadwalan, serta monitoring menggunakan tools manajemen proyek digital, khususnya Trello. Penelitian ini menggunakan metode deskriptif kualitatif dengan pengumpulan data melalui observasi kegiatan pembelajaran, dokumentasi proyek, dan refleksi pengalaman selama program berlangsung. Hasil penelitian menunjukkan bahwa penggunaan Trello mendukung pengelolaan tugas yang lebih terstruktur, meningkatkan pemahaman mahasiswa terhadap konsep manajemen proyek, serta memperkuat kesiapan mahasiswa dalam menghadapi lingkungan kerja profesional. Dengan demikian, program Studi Independen VINIX Indonesia dapat menjadi model pembelajaran yang efektif dalam pengembangan kompetensi Project Management di perguruan tinggi.
Kata Kunci: *manajemen proyek, pembelajaran digital, belajar mandiri, project-based learning, trello*

1. Introduction

In the modern era of higher education, developing students' project management competencies has become increasingly important to prepare them for real-world industry demands. Project-based learning (PjBL) has gained attention as an effective pedagogical approach, enabling active learning through authentic tasks, collaboration, and practical experience beyond traditional classroom methods [1][2]. PjBL is widely recognized for facilitating deeper student engagement, knowledge integration, and problem-solving skills crucial aspects in educational practices aimed at bridging the gap between theory and professional practice.

In Indonesia, the *Merdeka Belajar Kampus Merdeka* (MBKM) initiative encourages students to engage in experiential learning models such as Independent Study programs, which emphasize flexible learning pathways including project-based activities aligned with industry needs [3]. Independent Study aims to foster students' practical competencies by embedding real project implementation within learning contexts, increasing readiness for professional work environments. The project-oriented learning structure aligns with global trends in competency-based education that prioritize real-world application and collaboration [4].

Effective project management learning requires not only conceptual understanding but also integration with collaborative digital tools that support planning, organization, and monitoring of tasks [5]. Digital tools such as LMS and Kanban-based platforms have been studied for their role in enhancing collaborative learning and student engagement in higher education settings [6]. In particular, Trello a web based collaborative platform has shown potential for supporting workflow visualization and increased transparency in task management during project-based activities [7]. Research indicates that using web based collaborative platforms positively influences student engagement, satisfaction, and motivation in project-oriented educational contexts [8].

Integrating Trello into learning environments allows students to visualize project stages through boards, lists, and cards features that help manage project timelines and responsibilities [9]. This approach aligns with student-centered learning principles, fostering autonomy and communication within teams while reinforcing critical project management competencies needed in professional fields [10]. Studies show that combining PjBL and digital tools like Trello enhances student outcomes, engagement, and the development of skills such as collaboration and self-directed planning [11].

Several empirical studies have demonstrated the benefits of PjBL in improving learning outcomes such as academic achievement, critical thinking, and affective attitudes in higher education [12]. Furthermore, the integration of digital learning tools in flipped classroom contexts where students engage with materials and project tasks through collaborative platforms has shown positive effects on both motivation and learning outcomes [13]. These findings suggest that digital tools can support not only task management but also motivational and organizational aspects of learning.

Nevertheless, implementing PjBL and digital tools such as Trello presents challenges related to usability, readiness for digital adoption, and alignment with learning objectives [14]. Educators and curriculum designers must carefully consider how technological environments integrate with pedagogical strategies to maximize student learning experiences and competencies. Successful integration requires thoughtful design, scaffolding, and alignment to learning outcomes [15].

Therefore, this study aims to analyze the implementation of project management learning within the Independent Study program at VINIX Indonesia, with a particular focus on the use of Trello as a digital project management tool. By evaluating how Trello supports project coordination, task management, and collaborative learning, this research seeks to provide insights into how digital tools contribute to advancing project-based learning outcomes and preparing students for professional practice.

2. Material and Methods

Research Design, Object and Context

This study employed a descriptive qualitative research design to analyze the implementation of project management learning in the Independent Study program conducted by VINIX Indonesia. A qualitative approach was selected because the study focuses on understanding learning processes, user experiences, and the role of digital tools in supporting project-based learning rather than measuring variables quantitatively. This design allows for an in-depth exploration of how project management concepts are applied in an educational setting supported by digital platforms.

The object of this research is the implementation of project management learning in the Independent Study program organized by VINIX Indonesia. The study focuses on learning activities undertaken during the Project Management course, which applies a project-based learning approach. In this program, participants are required to complete both individual and group projects that simulate real-world project management practices.

Data Collection Techniques

Data collection in this study was conducted using several qualitative techniques to obtain comprehensive and credible information related to the learning process. The techniques used include observation, documentation, and reflective analysis.

Observation was carried out by monitoring learning activities and project workflows during the Independent Study program. This included observing how tasks were structured in Trello, how progress was updated, and how participants interacted within the project management platform. Documentation data were obtained from project artifacts such as Trello boards, task cards, checklists, timelines, and submitted project reports.

Data Sources

The data sources in this study are divided into primary and secondary data. Primary data consist of direct observations of project management activities conducted through Trello, including task organization, progress tracking, and collaboration patterns during the Independent Study program. Reflective experiences related to the use of Trello as a project management tool also form part of the primary data. Secondary data were obtained from supporting documents such as course modules, learning guidelines, project instructions, and previous research findings related to project-based learning and digital project management tools. These data were used to strengthen the analysis and provide a theoretical foundation for interpreting the research findings.

Data Analysis Technique

Data analysis was conducted using a qualitative descriptive approach. The analysis process began with data reduction, where relevant information related to project management learning and the use of Trello was selected and organized. The data were then categorized based on key project management components, including task planning, scheduling, collaboration, monitoring, and evaluation.

Next, data interpretation was performed by identifying patterns and relationships between learning activities and the use of Trello as a digital project management tool. The findings were analyzed to determine how Trello supports project-based learning, enhances task organization, and contributes to students' understanding of project management concepts. Finally, conclusions were drawn based on the overall analysis to address the research objectives.

Research Procedure

The research procedure followed several systematic stages. First, the learning activities and project requirements of the Independent Study program were identified. Second, project implementation using Trello was observed throughout the learning period. Third, documentation and reflective data were collected and organized. Fourth, the collected data were analyzed using qualitative descriptive techniques. Lastly, the results were interpreted to provide conclusions regarding the effectiveness of Trello in supporting project management learning.

3. Results and Discussion

The implementation of project management learning in the Independent Study program at VINIX Indonesia was conducted using a project-based learning approach. Participants were required to complete a series of structured tasks that simulated real project management activities, including project planning, task scheduling, stakeholder identification, risk analysis, and progress monitoring. These activities were designed to help students understand project management concepts not only theoretically but also through practical application in a controlled learning environment.

Throughout the learning process, participants worked on both group and individual projects. Group projects were mainly conducted in the early stages of the program to train collaboration and coordination skills, while individual projects were emphasized in later stages to strengthen independent planning and decision-making abilities. This structure allowed participants to gradually develop project management competencies in a systematic manner.

Utilization of Trello as a Digital Project Management Tool

Trello was used as the primary digital platform to support project management activities during the Independent Study program. All project tasks were organized into Trello boards, which consisted of several lists representing different stages of project execution, such as task planning, ongoing activities, and completed tasks. Each task was represented by a card containing detailed descriptions, deadlines, checklists, and progress indicators. Figure 1 illustrates the main Trello board used during the project implementation. The board visualizes the workflow structure and task distribution across different project phases. Through this visualization, participants were able to monitor project progress in real time and clearly identify tasks that required immediate attention.
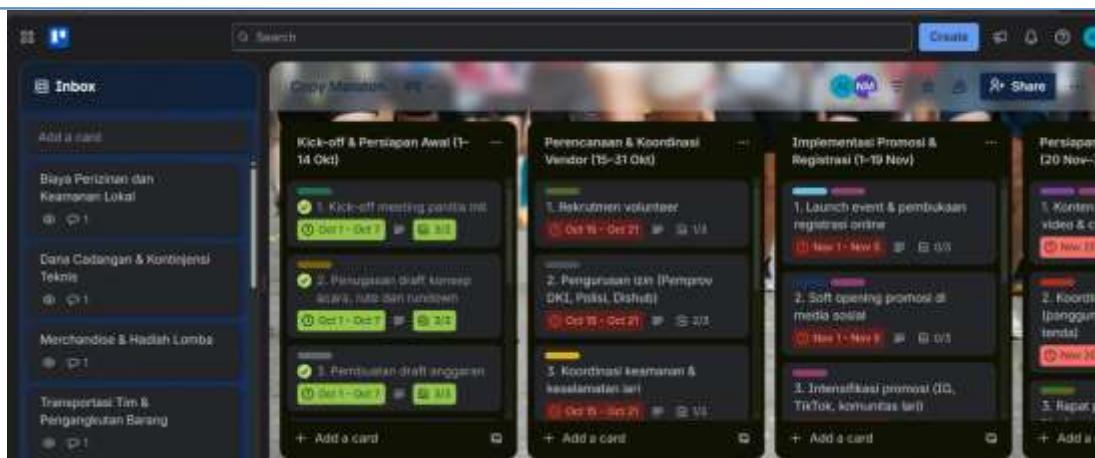
Fig. 1: Main Trello board used for project management learning

The use of Trello facilitated transparency and accountability among participants. Each task card was assigned to specific members, enabling clear responsibility allocation and reducing task overlap. This finding aligns with previous studies that emphasize the effectiveness of Kanban-based tools in improving task clarity and workflow management in project-based learning environments.

Project Coordination and Task Management

The results show that Trello effectively supported task coordination and scheduling during project implementation. Participants were able to break down complex project objectives into smaller, manageable tasks and organize them according to priority and deadlines. The checklist and due date features allowed participants to track task completion systematically, which helped minimize delays and improve time management. Furthermore, Trello enabled continuous project monitoring through regular updates on task status. Participants reported that the visual representation of progress helped them stay focused and motivated to complete tasks on time. This finding indicates that digital project management tools play a significant role in supporting self-regulated learning and structured work processes in higher education contexts.

Learning Outcomes and Student Experience

The integration of Trello into project management learning contributed positively to students' learning experiences. Participants demonstrated improved understanding of key project management components, including planning, scheduling, and monitoring. By actively managing tasks using Trello, students were able to apply theoretical concepts in a practical setting, which strengthened their comprehension and retention of project management principles. In addition, the use of Trello encouraged collaboration and communication among participants, particularly during group projects. Task updates and progress tracking allowed team members to coordinate activities more effectively without relying solely on synchronous communication. This result supports previous findings that digital collaboration tools enhance teamwork and learning engagement in project-based learning environments.

Discussion

The findings of this study indicate that the use of Trello as a digital project management tool effectively supports the implementation of project-based learning in an Independent Study program. The structured workflow provided by Trello aligns well with project management principles, enabling students to plan, execute, and monitor projects systematically.

The visualization features of Trello, as shown in Figure 1, played a crucial role in enhancing students' awareness of project progress and task dependencies. This visual clarity reduced confusion and helped participants manage workloads more efficiently. These results are consistent with previous studies that highlight the benefits of Kanban-based tools in improving task transparency and collaborative learning. However, some challenges were also identified, such as inconsistent task updates and varying levels of digital proficiency among participants. These challenges suggest that effective use of digital project management tools requires proper guidance, clear instructions, and consistent monitoring by instructors or mentors. Despite these limitations, the overall findings demonstrate that Trello is a suitable and effective tool for supporting project management learning in higher education.

4. Conclusion

This study analyzed the implementation of project management learning in the Independent Study program conducted by VINIX Indonesia using a project-based learning approach supported by the Trello digital platform. The results indicate that project-based learning provides meaningful learning experiences by enabling students to apply project management concepts through practical and structured project activities. Students were actively involved in planning, organizing, executing, and monitoring project tasks, which strengthened their understanding of project management principles.

The use of Trello as a digital project management tool proved effective in supporting task organization, workflow visualization, and progress monitoring. Features such as boards, lists, cards, checklists, and deadlines helped students manage tasks systematically and transparently. The visual representation of project progress, as illustrated in Figure 1, enhanced students' awareness of task dependencies and project status, contributing to better time management and coordination.

Furthermore, the integration of Trello supported collaborative learning and individual responsibility during both group and individual project activities. Students demonstrated improved coordination, communication, and self-regulated learning skills. Although challenges such as inconsistent task updates and differences in digital proficiency were identified, these issues did not significantly reduce the overall effectiveness of the learning process.

In conclusion, the Independent Study program at VINIX Indonesia, supported by Trello, can be considered an effective learning model for developing project management competencies in higher education. The findings suggest that integrating digital project management tools into project-based learning environments can enhance learning outcomes and better prepare students for professional work settings.

5. Acknowledgment

6. References

[1]   S. Sadji Evenddy and N. Gailea, "Exploring the Benefits and Challenges of Project-Based Learning in Higher Education," *PPSDP International Journal of Education*, vol. 2, no. 2, pp. 458–469, 2023.

[2]   L. Zhang and Y. Ma, "A study of the impact of project-based learning on student learning effects: a meta-analysis study," *Front Psychol*, vol. 14, Jul. 2023, doi: 10.3389/fpsyg.2023.1202728.

[3]   Undari, Mayrisa. "Pengaruh penerapan model PJBL (Project-Based Learning) terhadap keterampilan abad 21." *Jurnal Tunas Bangsa* 10.1 (2023): 25-33.

[4]   C. Marnewick, "Student experiences of project-based learning in agile project management education," *Project Leadership and Society*, vol. 4, p. 100096, Dec. 2023, doi: 10.1016/j.plas.2023.100096.

[5]   A. Bach and F. Thiel, "Collaborative online learning in higher education—quality of digital interaction and associations with individual and group-related factors," *Front Educ (Lausanne)*, vol. 9, Nov. 2024, doi: 10.3389/feduc.2024.1356271.

[6]   N. Meng, Y. Dong, D. Roehrs, and L. Luan, "Tackle implementation challenges in project-based learning: a survey study of PBL e-learning platforms," *Educational technology research and development*, vol. 71, no. 3, pp. 1179–1207, Jun. 2023, doi: 10.1007/s11423-023-10202-7.

[7]   E. N. H. Salakay and S. R. Shrivastava, "Exploring the Utility of Trello – An Alternative Learning Management System in Facilitating Problem-Based Learning in Medical Education," *Jurnal Pendidikan Kedokteran Indonesia: The Indonesian Journal of Medical Education*, vol. 13, no. 1, p. 82, Mar. 2024, doi: 10.22146/jpki.87753.

[8]   B. P. Uyen, D. H. Tong, and L. K. Ngan, "Online project-based learning for teacher education during the COVID-19 pandemic: A systematic review," *Contemp Educ Technol*, vol. 15, no. 3, p. ep433, Jul. 2023, doi: 10.30935/cedtech/13238.

[9]   Ambiyar, "Enhancing Motivation and Learning Outcomes in Multimedia Education: Integrating the Flipped Classroom Model with Trello's Learning Management System," *International Journal of Information and Education Technology*, vol. 14, no. 11, pp. 1583–1592, 2024, doi: 10.18178/ijiet.2024.14.11.2189.

[10]   B. Shehata, A. Tlili, R. Huang, M. A. Adarkwah, M. Liu, and T. Chang, "How are we doing with student-centered learning facilitated by educational technologies? A systematic review of literature reviews," *Educ Inf Technol (Dordr)*, vol. 29, no. 7, pp. 7813–7854, May 2024, doi: 10.1007/s10639-023-12112-w.

[11]   H. T. T. Bui, K. Amrita, and T. T. T. Nguyen, "Exploring the impact of project-based learning with scamper and trello on creative thinking of engineering students," *European Journal of Engineering Education*, vol. 50, no. 5, pp. 948–965, Sep. 2025, doi: 10.1080/03043797.2025.2474047.

[12]   L. Zhang and Y. Ma, "A study of the impact of project-based learning on student learning effects: a meta-analysis study," *Front Psychol*, vol. 14, Jul. 2023, doi: 10.3389/fpsyg.2023.1202728.

[13]   C. Connie and E. Risdianto, "MOOCs and Trello Based Blended Learning to Increase Student Involvement," *AL-Ishlah: Jurnal Pendidikan*, vol. 14, no. 1, pp. 1001–1008, Apr. 2022, doi: 10.35445/alishlah.v14i1.1378.

[14]   N. Meng, Y. Dong, D. Roehrs, and L. Luan, "Tackle implementation challenges in project-based learning: a survey study of PBL e-learning platforms," *Educational technology research and development*, vol. 71, no. 3, pp. 1179–1207, Jun. 2023, doi: 10.1007/s11423-023-10202-7.

[15]   Y. Haddou, O. Talbi, A. Ouared, and A. Chadli, "A learning assistance framework for supporting and analyzing student teams in project-based learning," *Educ Inf Technol (Dordr)*, vol. 30, no. 13, pp. 18579–18620, Aug. 2025, doi: 10.1007/s10639-025-13503-x.